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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,190	10/02/2003	Thomas O'Donnell	2002P16402US01	8307

7590 06/12/2008

Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
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EXAMINER	
SHAHRESTANI, NASIR	

ART UNIT	PAPER NUMBER
3737	

MAIL DATE	DELIVERY MODE
06/12/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	**Applicant(s)**	
Office Action Summary	10/677,190	O'DONNELL ET AL.	
	Examiner	**Art Unit**	
	NASIR SHAHRESTANI	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *10/02/2003; 03/12/2004*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-11, 14-24, 27, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (NPL - “Relationship of MRI Delayed Contrast Enhancement to Irreversible Injury, Infarct Age, and Contractile Function").

Kim et al. teach MRI delayed contrast enhancement (DEMR) in order to assess “the extent and degree of myocardial injury after and acute ischemic event" (pg. 1992, left column, par. 1), which can be construed as indicating a degree of viability.

Kim et al. further teach wherein images of “the entire left ventricle” are taken (pg. 1993, right column, par. 1 &2), which is construed to be a section of the myocardium.

Kim et al. further teach a “modified centerline method" which provides a division of the myocardium into 36 segments (pg. 1994, left column, par. 2; fig. 3) for analysis if MR image, which is construed to also teach segmenting an **endocardial border and epicardial border** of the section of the myocardium and dividing the segment of the section of the myocardium into sectors. As shown by Kim et al., the segments are merged into 3 regions for analysis of the DEMR images (pg. 1994, left column, par. 3 - pg. 1994, right column, par. 2).

Kim et al. also teach measuring one or more selected features of the sectors of the myocardium: being that of "**image intensity**" in the DEMR regions (pg. 1994, right column, par. 2).

Kim et al. further teach a method wherein the viability of myocardial tissue is determined for the regions in the DEMR images by an observer who compares the measured image intensity to a predetermined threshold (pg. 1994, right column, par. 2).

Kim et al. do not specifically teach displaying an image that shows each sector of the myocardium and an indication of its viability however it would have been an obvious modification to one of ordinary skill in the art at the time of invention to have done so since Kim et al. disclose a color coded visualization of **wall thickening** for segments.

Kim et al. do not specifically teach wherein a selected feature is rate of contrast agent uptake however the indication of contrast uptake rate is a feature which is well known in the art and an obvious modification to one of ordinary skill in the art to the features of Kim et al. since providing an indication of viability (as taught by Kim et al.) and rate of contrast uptake are features that can be carried out by the observer.

Claims 12-13 and 25-26, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (NPL - "Relationship of MRI Delayed Contrast Enhancement to Irreversible Injury, Infarct Age, and Contractile Function") in view of Zhou et al. (U.S. 2004/0064064 A1).

Kim et al. teach all the limitations of claims 1 and 15 but do not specifically teach the use of support vector machines providing Artificial Intelligence in place of an observer to determine viability of segments of the myocardium.

Zhou et al. teach a method and system for detecting the effects of Alzheimer's Disease (being a disease which affects tissue viability) in the human retina (see title) which utilizes a support vector machine (SVM) which is a learning machine that can perform binary classification and regression estimation tasks (par. 0014), and also teach an adaptive pattern classification system trained with a normative database to classify the accurate RNFL (retinal nerve fiber layer) feature data and to detect the effects of Alzheimer's Disease (par. 0017).

In summary, Zhou et al. is construed to teach a method of analyzing the viability of tissue using Artificial Intelligence.

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified the apparatus and method as taught by Kim et al. and to have incorporated the teachings of Zhou et al. in order to provide analysis of tissue viability (viability of the myocardium) using Artificial Intelligence and eliminating the need for an observer.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NASIR SHAHRESTANI whose telephone number is (571)270-1031. The examiner can normally be reached on Mon.-Thurs: 7:30-5:00, 2nd Friday: 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian L Casler/
Supervisory Patent Examiner, Art Unit 3737

/N. S./
Examiner, Art Unit 3737